

EXHIBIT 10

US Patent 6,885,643 Chrysler Uconnect Hotspot (using 802.11 Wi-Fi)

IEEE Std 802.11™-2012
(Revision of
IEEE Std 802.11-2007)

IEEE Standard for Information technology—
Telecommunications and information exchange between systems
Local and metropolitan area networks—
Specific requirements

Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

Sponsor
LAN/MAN Standards Committee
of the
IEEE Computer Society

4G Wi-Fi Hotspot



Create A 4G Wi-Fi Hotspot For Use In
Your Vehicle

Description

4G Wi-Fi Hotspot is an in-vehicle service that connects your device to the AT&T LTE (voice/data) or 4G (data) network that is ready to go where ever you are. After you've made your purchase, turn on your device's Wi-Fi and connect your devices.

1. A terminal device for control of data between communicating entities on a network via a wireless link, comprising:
 - an interface section for performing sending and receiving of packets with a remote communicating entity;
 - a link setting section for setting a link for control and for data transfer with the remote communicating entity;
 - a wireless link information acquisition section for acquiring wireless link information indicating the condition of a wireless link between said terminal device the remote communicating entity in the network at the time of setting the link, and for updating the wireless link information acquired at the time of setting the link by the current dynamically acquired wireless link information, the wireless link information including at least transmittable bandwidth information;
 - a wireless link information storage section for storing the acquired or updated wireless link information as Descriptor information referable by the remote communicating entity; and
 - an application section for, based on the wireless link information stored in the wireless link information storage section, determining whether or not data can be transferred and, if data transfer is possible, changing a transmission rate for transfer of data with the remote communicating entity, in accordance with the wireless link information.

Claim 1

A terminal device
for control of data
between
communicating
entities on a
network via a
wireless link,
comprising:

Source: <https://www.youtube.com/watch?v=csz-wlVyMYU>
"Uconnect Access WiFi Activation Video"



<https://www.factoryradioparts.com/products/2013-2014-2015-2016-2017-2018-uconnect-with-8-4inch-touch-screen-vp4-ra4-na-radio>

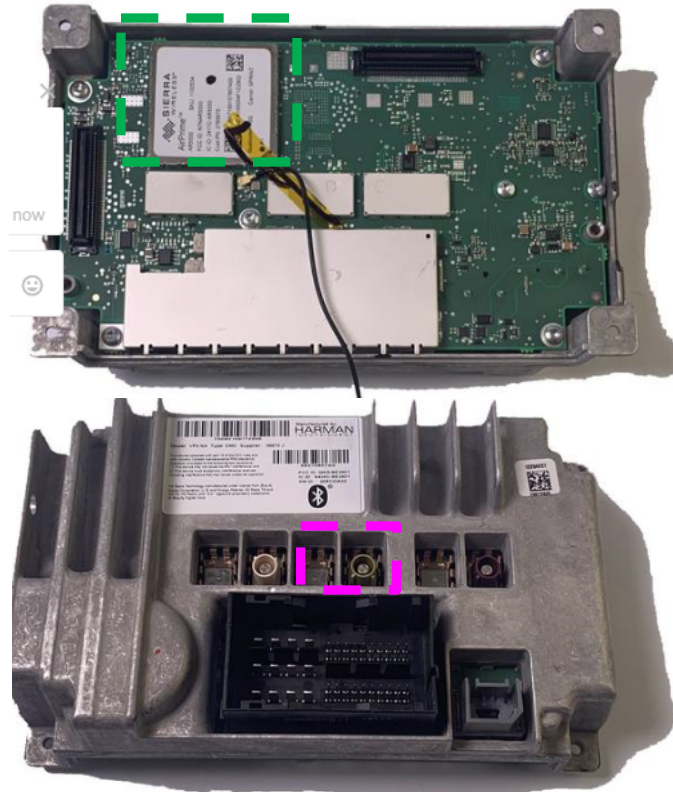


Claim 1

A terminal device
for control of data
between
communicating
entities on a
network via a
wireless link,
comprising:

Source:

<https://www.factoryradioparts.com/products/2013-2014-2015-2016-jeep-grand-cherokee-summit-trailhawk-srt-latitude-ram-1500-2500-3500-4500-5500-uconnect-8-4a-vp3-ra3-na-radio-infotainment-module>

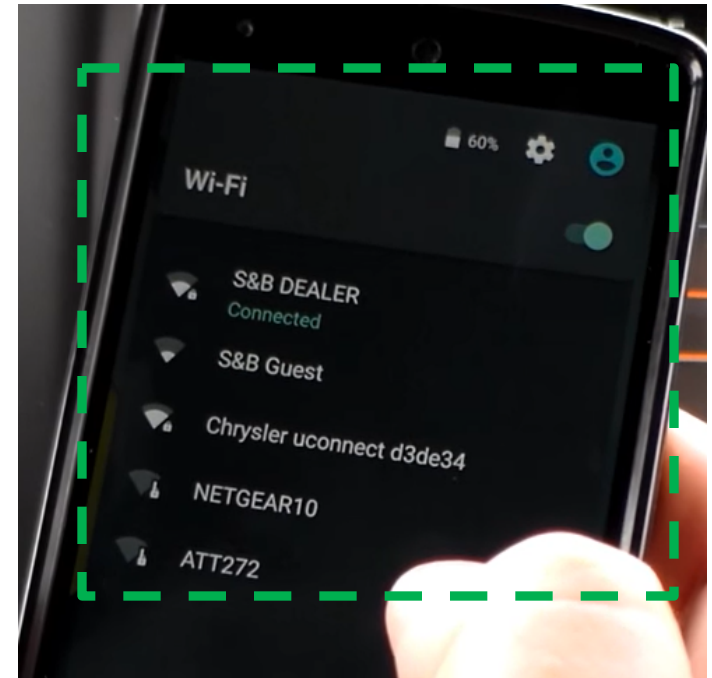


{Note: Plug shown above is for wireless antenna}

Source:

<https://www.youtube.com/watch?v=csz-wIVyMYU>

“Uconnect Access WiFi Activation Video”



Claim 1

A terminal device
for control of data
between
communicating
entities on a
network via a
wireless link,
comprising:

Source: IEEE Std 802.11™-2012: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

PART 11: WIRELESS LAN MAC AND PHY SPECIFICATIONS

IEEE
Std 802.11-2012

Figure 4-11 combines the components from previous figures with both types of services to show the complete IEEE 802.11 architecture.

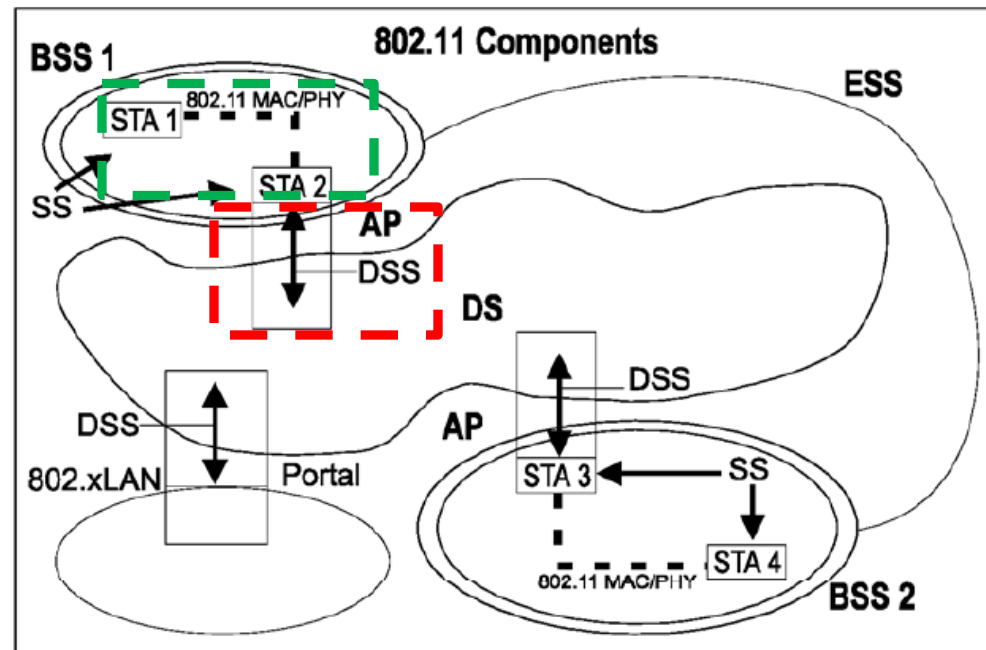
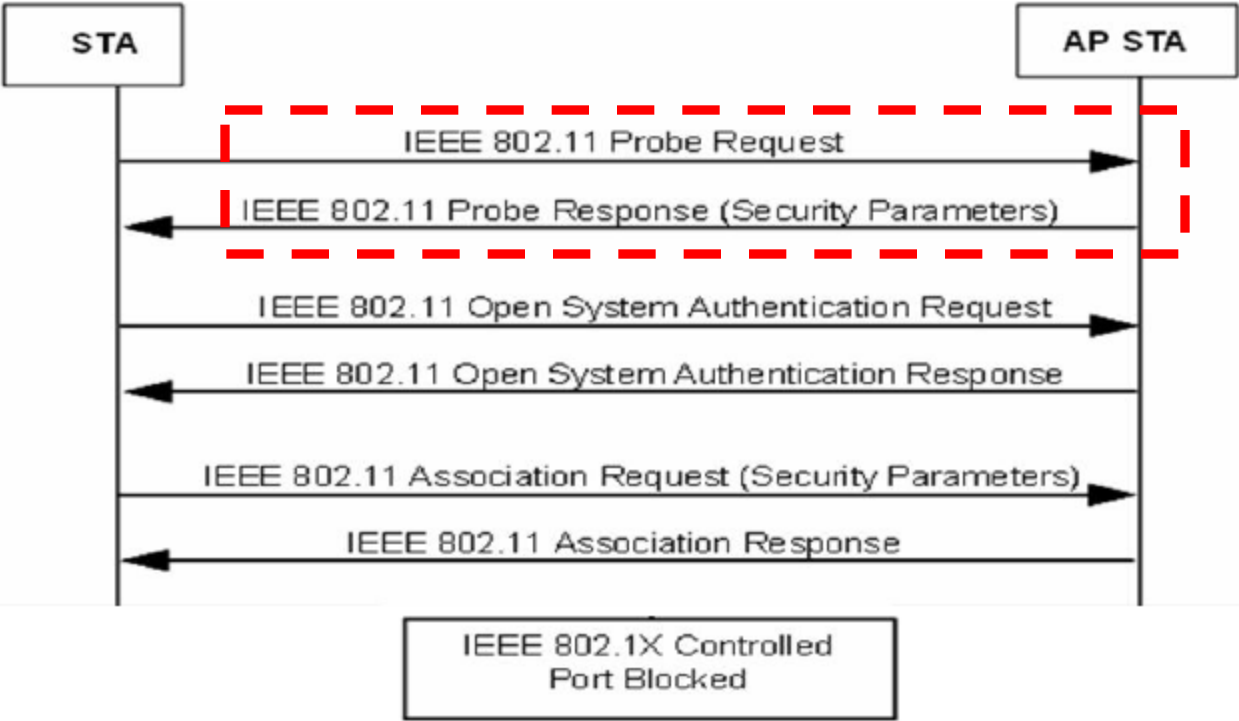


Figure 4-11—Complete IEEE 802.11 architecture

Claim 1	
<p>an interface section for performing sending and receiving of packets with a remote communicating entity;</p>	<p>Source: Source: IEEE Std 802.11™-2012: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications</p> <p><i>{e.g. phone}</i> <i>{Uconnect Hotspot}</i></p>  <pre> sequenceDiagram participant STA participant AP_STA as AP STA STA->>AP_STA: IEEE 802.11 Probe Request AP_STA-->>STA: IEEE 802.11 Probe Response (Security Parameters) STA->>AP_STA: IEEE 802.11 Open System Authentication Request AP_STA-->>STA: IEEE 802.11 Open System Authentication Response STA->>AP_STA: IEEE 802.11 Association Request (Security Parameters) AP_STA-->>STA: IEEE 802.11 Association Response </pre> <p style="text-align: center;">IEEE 802.1X Controlled Port Blocked</p> <p>Figure 4-17—Establishing the IEEE 802.11 association</p> <p>Note: “AP STA” is access point/router and “STA” is attaching device, WiFi Client, smartphone, etc.</p>

Claim 1

a link setting
section for setting
a link for control
and for data
transfer with the
remote
communicating
entity;

Source: <https://www.cleartosend.net/cts-047-troubleshooting-wifi-wireshark/>

No.	Time	Source	Destination	Length	Info
1	07:11:58.066	d8:bb:2c:1b:4f:05	ff:ff:ff:ff:ff:ff	151	Probe Request, SN=891, FN=0, Flags=.....C, SSID=TEST
2	07:11:58.067	0c:68:03:d6:88:78	d8:bb:2c:1b:4f:05	263	Probe Response, SN=2134, FN=0, Flags=...R...C, BI=102,
▶ Frame 1: 151 bytes on wire (1208 bits), 151 bytes captured (1208 bits)					
▼ Radiotap Header v0, Length 25					
Header revision: 0					
Header pad: 0					
Header length: 25					
▶ Present flags					
MAC timestamp: 909104562					
▶ Flags: 0x12					
Data Rate: 6.0 Mb/s					
Channel frequency: 5240 [A 48]					
▶ Channel flags: 0x0140, Orthogonal Frequency-Division Multiplexing (OFDM), 5 GHz spectrum					
SSI Signal: -40 dBm					
SSI Noise: -95 dBm					
Antenna: 1					
▶ 802.11 radio information					
▼ IEEE 802.11 Probe Request, Flags:C					
Type/Subtype: Probe Request (0x0004)					
▶ Frame Control Field: 0x4000					
.000 0000 0000 0000 = Duration: 0 microseconds					
Receiver address: ff:ff:ff:ff:ff:ff					
Destination address: ff:ff:ff:ff:ff:ff					
Transmitter address: d8:bb:2c:1b:4f:05					
Source address: d8:bb:2c:1b:4f:05					
BSS Id: ff:ff:ff:ff:ff:ff					
.... 0000 = Fragment number: 0					
0011 0111 1011 = Sequence number: 891					
▶ Frame check sequence: 0x6528f9cd [correct]					
▼ IEEE 802.11 wireless LAN management frame					
▼ Tagged parameters (98 bytes)					
▶ Tag: SSID parameter set: TEST					
▶ Tag: Supported Rates 6, 9, 12, 18, 24, 36, 48, 54, [Mbit/sec]					
▶ Tag: HT Capabilities (802.11n D1.10)					
▶ Tag: Extended Capabilities (8 octets)					
▶ Tag: Interworking					
▶ Tag: VHT Capabilities (IEEE Std 802.11ac/D3.1)					
▶ Tag: Vendor Specific: 00:50:f2: Unknown 8					
▶ Tag: Vendor Specific: 00:10:18					

Claim 1

a wireless link
information acquisition
section for acquiring
wireless link
information indicating
the condition of a
wireless link between
said terminal device
the remote
communicating entity
in the network

Source: IEEE Std 802.11™-2012: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

IEEE
Std 802.11-2012

LOCAL AND METROPOLITAN AREA NETWORKS—SPECIFIC REQUIREMENTS

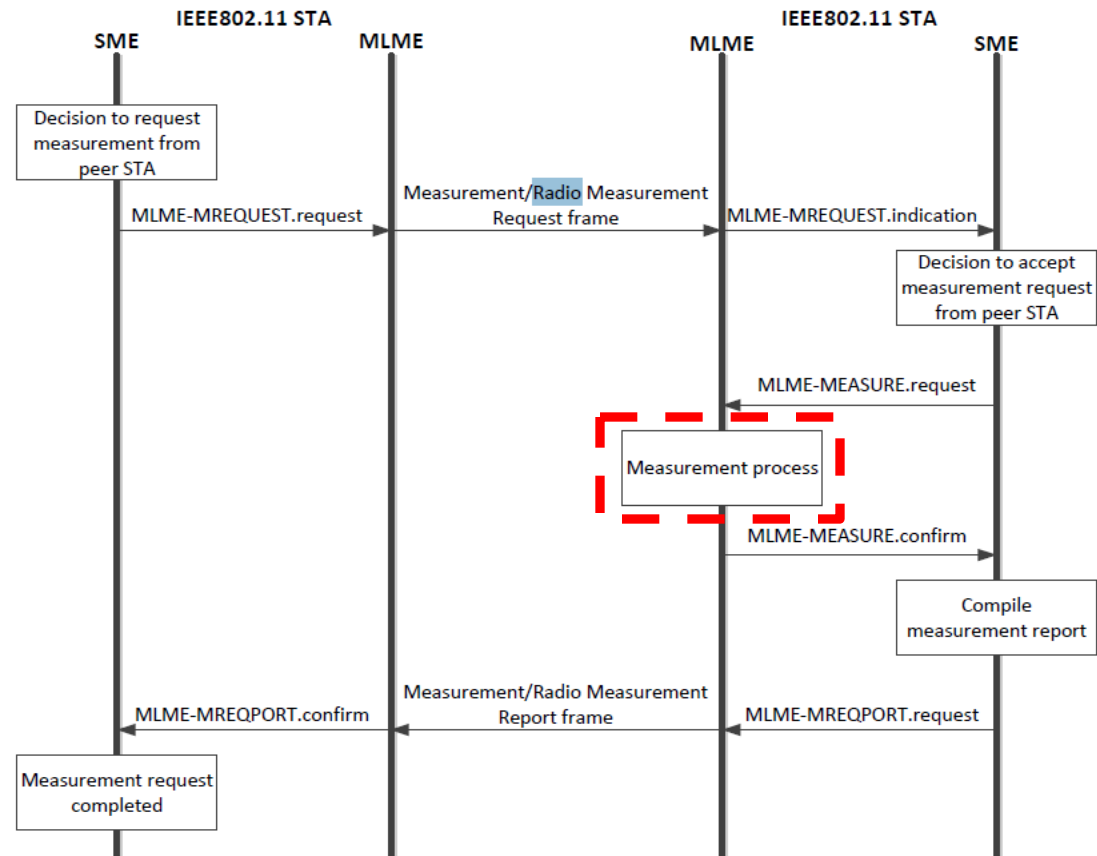


Figure 6-3—Measurement request—accepted

Claim 1

at the time of
setting the link,

Source: <https://www.clearToSend.net/cts-047-troubleshooting-wifi-wireshark/>

No.	Time	Source	Destination	Length	Info
1	07:11:58.066	d8:bb:2c:1b:4f:05	ff:ff:ff:ff:ff:ff	151	Probe Request, SN=891, FN=0, Flags=.....C, SSID=TEST
2	07:11:58.067	0c:68:03:d6:88:78	d8:bb:2c:1b:4f:05	263	Probe Response, SN=2134, FN=0, Flags=....R...C, BI=102,
▶ Frame 1: 151 bytes on wire (1208 bits), 151 bytes captured (1208 bits)					
▼ Radiotap Header v0, Length 25					
Header revision: 0 Header pad: 0 Header length: 25					
▶ Present flags					
MAC timestamp: 909104562					
▶ Flags: 0x12					
Data Rate: 6.0 Mb/s					
Channel frequency: 5240 [A 48]					
▶ Channel flags: 0x0140, Orthogonal Frequency-Division Multiplexing (OFDM), 5 GHz spectrum					
SSI Signal: -40 dBm					
SSI Noise: -95 dBm					
Antenna: 1					
▶ 802.11 Radio Information					
▼ IEEE 802.11 Probe Request, Flags:C					
Type/Subtype: Probe Request (0x0004)					
▶ Frame Control Field: 0x4000					
.000 0000 0000 0000 = Duration: 0 microseconds					
Receiver address: ff:ff:ff:ff:ff:ff					
Destination address: ff:ff:ff:ff:ff:ff					
Transmitter address: d8:bb:2c:1b:4f:05					
Source address: d8:bb:2c:1b:4f:05					
BSS Id: ff:ff:ff:ff:ff:ff					
.... .. 0000 = Fragment number: 0					
0011 0111 1011 = Sequence number: 891					
▶ Frame check sequence: 0x6528f9cd [correct]					
▼ IEEE 802.11 wireless LAN management frame					
▼ Tagged parameters (98 bytes)					
▶ Tag: SSID parameter set: TEST					
▶ Tag: Supported Rates 6, 9, 12, 18, 24, 36, 48, 54, [Mbit/sec]					
▶ Tag: HT Capabilities (802.11n D1.10)					
▶ Tag: Extended Capabilities (8 octets)					
▶ Tag: Interworking					
▶ Tag: VHT Capabilities (IEEE Std 802.11ac/D3.1)					
▶ Tag: Vendor Specific: 00:50:f2: Unknown 8					
▶ Tag: Vendor Specific: 00:10:18					

Claim 1

and for updating the wireless link information acquired at the time of setting the link by the current dynamically acquired wireless link information,

Source: IEEE Std 802.11™-2012: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

Table 6-7—ESS Link Parameter Set

Name	Type	Valid range	Description
PeakOperationalRate	Integer	As defined in 8.4.2.3	The integer representing the desired peak modulation data rate used for data frame transmission.
MinimumOperationalRate	Integer	As defined in 8.4.2.3	The integer encoding of the desired minimum modulation data rate used in data frame transmission.
NetworkDowntimeInterval	Integer	0 – 65 535	Desired advance warning time interval, in TUs, for MSGCF-ESS-Link-Going-Down events.
DataFrameRSSI	Integer	-100 to 40	The received signal strength in dBm of received Data frames from the network. This may be time-averaged over recent history by a vendor-specific smoothing function.
BeaconRSSI	Integer	-100 to 40	The received signal strength in dBm of Beacon frames received on the channel. This may be time-averaged over recent history by a vendor-specific smoothing function.
BeaconSNR	Integer	0–100	The signal to noise ratio of the received data frames, in dB. This may be time-averaged over recent history by a vendor-specific smoothing function.
DataFrameSNR	Integer	0–100	The signal to noise ratio of the received Beacon frames, in dB. This may be time-averaged over recent history by a vendor-specific smoothing function.
DataThroughput	Integer	0 – 65 535	The data throughput in megabits per second, rounded to the nearest megabit. This may be time-averaged over recent history by a vendor-specific smoothing function.

Claim 1

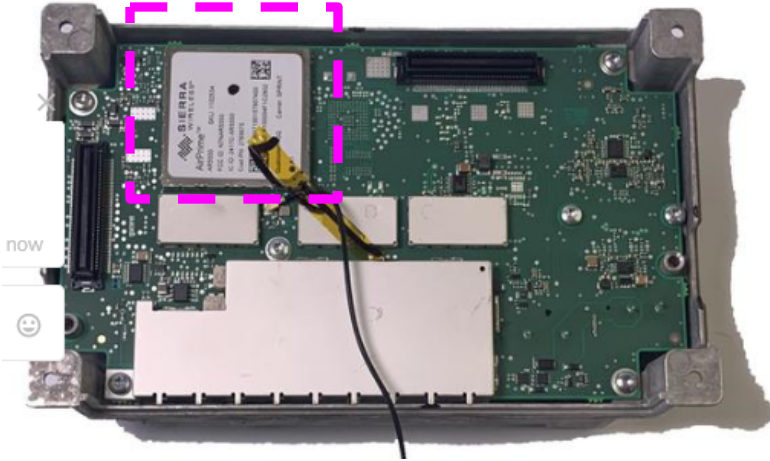
the wireless link
information including
at least transmittable
bandwidth
information;

Source: IEEE Std 802.11™-2012: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

Table 6-7—ESS Link Parameter Set

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BeaconRSSI	Integer	–100 to 40	The received signal strength in dBm of Beacon frames received on the channel. This may be time-averaged over recent history by a vendor-specific smoothing function.
BeaconSNR	Integer	0–100	The signal to noise ratio of the received data frames, in dB. This may be time-averaged over recent history by a vendor-specific smoothing function.
DataFrameSNR	Integer	0–100	The signal to noise ratio of the received Beacon frames, in dB. This may be time-averaged over recent history by a vendor-specific smoothing function.
DataThroughput	Integer	0 – 65 535	The data throughput in megabits per second, rounded to the nearest megabit. This may be time-averaged over recent history by a vendor-specific smoothing function.

Claim 1	
<p>a wireless link information storage section for storing the acquired or updated wireless link information as Descriptor information referable by the remote communicating entity; and</p>	<p>Source: IEEE Std 802.11™-2012: Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications</p> <p>IEEE Std 802.11-2012 LOCAL AND METROPOLITAN AREA NETWORKS—SPECIFIC REQUIREMENTS</p> <pre> sequenceDiagram participant SME1 as SME IEEE802.11 STA1 participant MLME1 as MLME IEEE802.11 STA1 participant MLME2 as MLME IEEE802.11 STA2 participant SME2 as SME IEEE802.11 STA2 Note over SME1: Decision to request measurement from peer STA SME1->>MLME1: MLME-MREQUEST.request MLME1->>MLME2: Measurement/Radio Measurement Request frame MLME2->>SME2: MLME-MREQUEST.indication Note over SME2: Decision to accept measurement request from peer STA SME2->>MLME2: MLME-MEASURE.request Note over MLME2: Measurement process MLME2->>SME2: MLME-MEASURE.confirm Note over SME2: Compile measurement report SME2->>MLME2: MLME-MREPORT.request MLME2->>MLME1: Measurement/Radio Measurement Report frame MLME1->>SME1: MLME-MREPORT.confirm Note over SME1: Measurement request completed </pre> <p>Figure 6-3—Measurement request—accepted</p>

Claim 1	
<p>an application section for, based on the wireless link information stored in the wireless link information storage section, determining whether or not data can be transferred</p>	<p>Source: https://www.factoryradioparts.com/products/2013-2014-2015-2016-jeep-grand-cherokee-summit-trailhawk-srt-latitude-ram-1500-2500-3500-4500-5500-uconnect-8-4a-vp3-ra3-na-radio-infotainment-module</p> 

Claim 1

an application
section for,
based on the
wireless link
information
stored in the
wireless link
information
storage section,
determining
whether or not
data can be
transferred

Source: "Wi-Fi SNR to MCS Data Rate Mapping Reference," Revolution Wi-Fi, September 27, 2014.

https://drive.google.com/open?id=1TBUzWUG758_HJLcH1sjLeNjDgitX50hP

MCS is "Modulation and Coding Scheme"

MCS Value Achieved by Clients at Various Signal to Noise Ratio Levels (SNR)

Protocol	Channel	1	2	3	4	5	6	7	8	9	10	Modulation Key
802.11b	20MHz	None	None	None	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	MCS 1	
802.11a/g	20MHz	None	MCS 0	MCS 0	MCS 1	MCS 2	MCS 2	MCS 2	MCS 2	MCS 3	MCS 3	None = Grey
802.11n	20MHz	None	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	MCS 1	MCS 2	MCS 2	BPSK = Red
802.11n	40MHz	None	None	None	None	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	QPSK = Orange
802.11ac	20MHz	None	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	MCS 1	MCS 2	MCS 2	16-QAM = Yellow
802.11ac	40MHz	None	None	None	None	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	64-QAM = Blue
802.11ac	80MHz	None	None	None	None	None	None	None	MCS 0	MCS 0	MCS 0	256-QAM = Green
802.11ac	160MHz	None	None	None	None	None	None	None	None	None	None	
SNR in dB		11	12	13	14	15	16	17	18	19	20	802.11 Type Key
802.11b	20MHz	MCS 2	MCS 2	MCS 2	MCS 2	MCS 2	MCS 3	MCS 3	MCS 3	MCS 3	MCS 3	
802.11a/g	20MHz	MCS 4	MCS 4	MCS 4	MCS 4	MCS 5	MCS 5	MCS 5	MCS 6	MCS 6	MCS 7	802.11b
802.11n	20MHz	MCS 3	MCS 3	MCS 3	MCS 3	MCS 4	MCS 4	MCS 4	MCS 5	MCS 5	MCS 6	802.11ag
802.11n	40MHz	MCS 1	MCS 2	MCS 2	MCS 3	MCS 3	MCS 3	MCS 3	MCS 4	MCS 4	MCS 4	802.11n
802.11ac	20MHz	MCS 3	MCS 3	MCS 3	MCS 3	MCS 4	MCS 4	MCS 4	MCS 5	MCS 5	MCS 6	802.11ac
802.11ac	40MHz	MCS 1	MCS 2	MCS 2	MCS 3	MCS 3	MCS 3	MCS 3	MCS 4	MCS 4	MCS 4	
802.11ac	80MHz	MCS 1	MCS 1	MCS 1	MCS 1	MCS 2	MCS 2	MCS 3	MCS 3	MCS 3	MCS 3	
802.11ac	160MHz	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	MCS 1	MCS 2	MCS 2	MCS 3	

Claim 1

if data transfer
is possible,
changing a
transmission
rate for transfer
of data with the
remote
communicating
entity, in
accordance with
the wireless link
information.

Source: https://drive.google.com/open?id=1TBUzWUG758_HJLcH1sjLeNjDgjtX50hP

MCS Value Achieved by Clients at Various Signal to Noise Ratio Levels (SNR)

Protocol	Channel	1	2	3	4	5	6	7	8	9	10	Modulation Key
802.11b	20MHz	None	None	None	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	MCS 1	
802.11a/g	20MHz	None	MCS 0	MCS 0	MCS 1	MCS 2	MCS 2	MCS 2	MCS 2	MCS 3	MCS 3	None = Grey
802.11n	20MHz	None	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	MCS 1	MCS 2	MCS 2	BPSK = Red
802.11n	40MHz	None	None	None	None	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	QPSK = Orange
802.11ac	20MHz	None	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	MCS 1	MCS 2	MCS 2	16-QAM = Yellow
802.11ac	40MHz	None	None	None	None	MCS 0	MCS 0	MCS 0	MCS 1	MCS 1	MCS 1	64-QAM = Blue
802.11ac	80MHz	None	None	None	None	None	None	None	MCS 0	MCS 0	MCS 0	256-QAM = Green
802.11ac	160MHz	None	None	None	None	None	None	None	None	None	None	
SNR in dB		11	12	13	14	15	16	17	18	19	20	802.11 Type Key
802.11b	20MHz	MCS 2	MCS 2	MCS 2	MCS 2	MCS 2	MCS 3	MCS 3	MCS 3	MCS 3	MCS 3	
802.11a/g	20MHz	MCS 4	MCS 4	MCS 4	MCS 4	MCS 5	MCS 5	MCS 5	MCS 6	MCS 6	MCS 7	802.11b
802.11n	20MHz	MCS 3	MCS 3	MCS 3	MCS 3	MCS 4	MCS 4	MCS 4	MCS 5	MCS 5	MCS 6	802.11ag
802.11n	40MHz	MCS 1	MCS 2	MCS 2	MCS 3	MCS 3	MCS 3	MCS 3	MCS 4	MCS 4	MCS 4	802.11n
802.11ac	20MHz	MCS 3	MCS 3	MCS 3	MCS 3	MCS 4	MCS 4	MCS 4	MCS 5	MCS 5	MCS 6	802.11ac

Table 9-5—Non-HT reference rate

Modulation	Coding rate (R)	Non-HT reference rate (Mb/s)
BPSK	1/2	6
BPSK	3/4	9
QPSK	1/2	12
QPSK	3/4	18
16-QAM	1/2	24